

AMENDMENTS TO THE CLAIMS

1-14. (Cancelled)

15. (Currently amended) A process for electrolytically etching gold from a microelectronic workpiece, said process comprising steps of:

- (a) providing a thiourea-free and cyanide-free etching bath;
- (b) providing a microelectronic workpiece having thereon at least some amount of gold;
- (c) contacting said gold with said etching bath; and
- (d) providing electric current flow between said gold and a cathode disposed in electrical contact with said bath, whereby at least a portion of said gold is removed from said microelectronic workpiece.

16. (Original) A process for electrolytically etching gold from a microelectronic workpiece, said process comprising steps of:

- (a) providing an aqueous thiourea-free etching bath comprising:
 - (1) about 0.5-1.5 M of iodide;
 - (2) about 0.1-0.3 M of sulfite; and
 - (3) about 1.0-3.0 g/L of wetting agent;
- (b) providing a microelectronic workpiece having at least some amount of gold thereon;
- (c) contacting the gold with the etching bath; and
- (d) providing an electric current flow between the gold and a cathode disposed in electrical contact with the bath, whereby at least a portion of the gold is removed from the microelectronic workpiece.

17. (Original) The process of Claim 16, wherein a source of said iodide in said bath is selected from the group consisting of LiI, LiI•3H₂O, NaI, NaI•2H₂O, and KI.

18. (Original) The process of Claim 16, wherein a source of said iodide in said bath is KI.

19. (Original) The process of Claim 16, wherein the concentration of said iodide in said bath is about 0.9-1.1 M.

20. (Original) The process of Claim 16, wherein a source of said sulfite in said bath is selected from the group consisting of Li₂SO₃•H₂O, Na₂SO₃, Na₂SO₃•7H₂O, and K₂SO₃•2H₂O.

21. (Original) The process of Claim 16, wherein a source of said sulfite in said bath is Na₂SO₃.

22. (Original) The process of Claim 16, wherein the concentration of said sulfite in said bath is about 0.18-0.22 M.

23. (Original) The process of Claim 16, wherein the wetting agent in said bath is a polyethylene glycol.

24. (Original) The process of Claim 16, wherein the wetting agent in said bath is a polyethylene glycol having an average molecular weight ranging from about 2,000 to about 35,000.

25. (Original) The process of Claim 23, wherein the concentration of the wetting agent in said bath is about 2.7-3.3 g/L.

26. (Original) The process of Claim 16, wherein the pH of said bath is about 6.4-8.0.

27. (Original) A process for electrolytically etching gold from a microelectronic workpiece, said process comprising steps of:

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(a) providing an thiourea-free etching bath having a temperature of about 20-30°C, said bath comprising:

(1) about 0.9-1.1 M of iodide, wherein the source of iodide is selected from the group consisting of LiI, LiI•3H₂O, NaI, NaI•2H₂O, and KI;

(2) about 0.18-0.22 M of sulfite, wherein the source of sulfite is selected from the group consisting of Li₂SO₃•H₂O, Na₂SO₃, Na₂SO₃•7H₂O, and K₂SO₃•2H₂O;

(3) about 2.7-3.3 g/L of a polyethylene glycol; and

(4) the balance is water;

(b) providing a microelectronic workpiece having at least some amount of gold thereon;

(c) contacting the gold with the etching bath;

(d) providing electric current flow between the gold and a cathode disposed in electrical contact with the bath; and

(e) removing at least a portion of the gold from said microelectronic workpiece.

28. (Original) The process of Claim 27, wherein the pH of said bath is about 6.4-8.0.

29-34. (Canceled)

35. (Previously presented) The process of Claim 15, wherein the thiourea-free etching bath comprises:

(a) chloride; and

(b) a wetting agent.

36. (Previously presented) The process of Claim 35, wherein the chloride is present in an amount of from about 1 to 6 M.

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37. (Previously presented) The process of Claim 36, wherein the source of chloride is hydrochloric acid.

38. (Previously presented) The process of Claim 35, wherein the wetting agent is polyethylene glycol.

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